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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,648	08/25/2003	Gunter Uhl	127.015	2128

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EXAMINER

WALBERG, TERESA J

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/647,648

Applicant(s)

UHL ET AL.

Examiner

Teresa J. Walberg

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 18-29 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/25/03.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eisenhardt et al (2001/0013512) in view of Ueno et al (2001/0050843).

Eisenhardt et al disclose an electric heating device for motor vehicles (see abstract) including heating elements (paragraphs 022 and 023), a heater block, a control unit for controlling the heating elements, the control unit forming one structural unit with the heater block and power transistors (FETs, paragraph 018) arranged on a printed circuit board and cooling elements (paragraph 0013) allocated to these power transistors.

While Eisenhardt states that the semiconductor heaters are mounted in thermal contact on a cooling body, but does not discuss the structure of the cooling body.

Ueno et al disclose a cooling element formed from a cooling body and a heat conducting element insertable into an opening of the printed circuit board.

It would have been obvious in view of Ueno et al to provide the heaters of Eisenhardt with cooling bodies and a heat conducting element insertable into an opening of a printed circuit board to improve the heat transfer.

3. Claims 2-6, 13, 23, 24, and 29 are rejected under 103 as being unpatentable over Eisenhardt et al (2001/0013512) in view of Ueno et al (2001/0050843) as applied to claims 1 and 22 above and further in view of Jamieson et al (6,545,351).

Eisenhardt et al in view of Ueno et al disclose the claimed structure with the exception of the heat conducting element being glued to the cooling body and the heat conducting elements being copper or aluminum.

Jamieson et al disclose the cooling elements being secured by gluing with epoxy and being made of copper or aluminum.

It would have been obvious in view of Jamieson et al to use epoxy to secure the heat conducting element and heat sink in place in the heating device of Eisenhardt et al in view of Ueno et al to better secure the elements in place and to prevent current leakage through the heat conducting elements.

It would have been obvious in view of Jamieson et al to make the heat conducting element of copper or aluminum in the heating device of Eisenhardt et al in view of Ueno et al to obtain good heat transfer.

4. Claims 10 and 26 are rejected under 103 as being unpatentable over Eisenhardt et al (2001/0013512) in view of Ueno et al (2001/0050843) as applied to claims 1 and 22 above and further in view of Hedberg et al (6,700,780).

Eisenhardt et al in view of Ueno et al disclose the claimed structure with the exception of windows blowing air past the heat sink elements.

Hedberg et al disclose using windows to blow air past heat sink elements for improving heat transfer.

It would have been obvious in view of Hedberg et al to use windows to blow air past the heat sink elements in the heating device of Eisenhardt et al in view of Ueno et al for improved heat transfer.

5. Claims 8, 9, 18, 19, and 25 are rejected under 103 as being unpatentable over Eisenhardt et al (2001/0013512) in view of Ueno et al (2001/0050843) as applied to claims 1 and 22 above and further in view of Kazuo (FR 2,639,764).

Eisenhardt et al in view of Ueno et al disclose the claimed structure with the exception of the cooling element being rectangular and the heat conducting element having a protrusion protruding through the cooling body and a bulb laterally fitting around the protruding end.

Kazuo discloses a rectangular cooling element and a heat conducting element (2) having a protrusion protruding through the cooling body (4) and a bulb (6) laterally fitting around the protruding end.

It would have been obvious in view of Kazuo to provide the heat conducting element with a protrusion protruding through the cooling body and a bulb laterally fitting around the protruding end in the heating device of Eisenhardt et al in view of Ueno et al to better secure the parts together.

It would have been obvious in view of Kazuo to use a rectangular cooling element in the heating device of Eisenhardt et al in view of Ueno et al, since Eisenhardt

et al do not discuss the shape of the cooling element and it appears that any shape would be useable.

6. Claims 11, 12, and 27 are rejected under 103 as being unpatentable over Eisenhardt et al (2001/0013512) in view of Ueno et al (2001/0050843) as applied to claims 1 and 22 above and further in view of Combs (5,596,231).

Eisenhardt et al in view of Ueno et al disclose the claimed structure with the exception of an electrically insulating coating on the cooling body.

Combs discloses providing an electrically insulating coating on a cooling body.

It would have been obvious in view of Combs to provide the cooling body in the heating device of Eisenhardt et al in view of Ueno et al with an insulating coating to prevent electrical shocks to a user and current flow to undesired areas.

7. Claims 20 and 21 are rejected under 103 as being unpatentable over Eisenhardt et al (2001/0013512) in view of Ueno et al (2001/0050843) as applied to claims 1 and 22 above and further in view of Yoshikawa (6,046,498).

Eisenhardt et al in view of Ueno et al disclose the claimed structure with the exception of the cooling bodies of several adjacent cooling elements being formed in one piece.

Yoshikawa discloses providing a one piece cooling body for several adjacent cooling elements.

It would have been obvious in view of Yoshikawa to provide the cooling body in the heating device of Eisenhardt et al in view of Ueno et al with a one piece cooling body for easier assembly of the device.

8. Claim 7 is rejected under 103 as being unpatentable over Eisenhardt et al (2001/0013512) in view of Ueno et al (2001/0050843) as applied to claims 1 and 22 above and further in view of Burward-Hoy (5,461,766).

Eisenhardt et al in view of Ueno et al disclose the claimed structure with the exception of the opening being cylindrical.

Burward-Hoy discloses that it is known in the art to use cylindrical circuit elements and cylindrical heat sinks to cool these elements.

It would have been obvious in view of Burward-Hoy to make the hole in the circuit board of Eisenhardt et al in view of Ueno et al circular to more easily provide cooling to circular circuit elements of the sort taught by Burward-Hoy.

9. Claims 14-16 and 28 are rejected under 103 as being unpatentable over Eisenhardt et al (2001/0013512) in view of Ueno et al (2001/0050843) as applied to claims 1 and 22 above and further in view of IBM Tech. Disc.

Eisenhardt et al in view of Ueno et al disclose the claimed structure with the exception of the heat conducting element being tapered.

IBM discloses tapering a heat conducting element for cooling a circuit element.

It would have been obvious in view of IBM to taper the cooling body in the heating device of Eisenhardt et al in view of Ueno et al to obtain improved heat transfer.

With respect to claim 15, it would have been obvious to one of ordinary skill in the art to make the heat conducting element cylindrical or any other desired shape, based on the cross section of the circuit element it was intended to cool.

10. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 703-308-1327. The examiner can normally be reached on M-F 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 703-305-5766. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Teresa J. Walberg
Primary Examiner
Art Unit 3742

tjw